

Math 22 X14 Extra credit homework
Proofwriting assignment #2

Directions: this homework is for extra credit, up to 2% extra credit over the whole course. This is a list of suggested exercises to work through; you are by no means required to complete them all. There is no due date for this homework; once you feel like you're finished you can drop it in the box outside Kemeny 008 (in the "Extra Credit" slot), email it to me or set an appointment with me to talk about it in person. If you need help with it please come directly to the instructor.

1. It's always good practice to go look at the proofs of all the theorems we've covered in class, understand them and try to replicate them without guidance. This is especially true for the invertible matrix theorem.
2. Read through chapter 4, up to and including section 4.7. This gives a more abstract view of subspaces through the more general theory of vector spaces, i.e. spaces that look like \mathbb{R}^n except that a basis hasn't been picked. It mostly follows what we've done in the \mathbb{R}^n case, but contains new information in sections 4.1 (definition of a vector space), 4.5 (proof of the basis theorem) and especially 4.7 (basis change). If you want to do some problems to test your knowledge on these sections let me know, and I can pick some problems for you that best represent the sections.
3. Try your hand at some proofs with the following exercises:
 - Section 2.1: 18-34;
 - Section 2.2: 11-28
 - Section 2.3: 13-32, 36-40;
 - Section 2.5: 19-21
 - Section 2.8: 31-35
 - Section 2.9: 17-28